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The Official Organ of the Rhode Island Medical Society
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ORIGINAL ARTICLES

THE RENAL FACTOR IN CHRONIC GASTRO-INTESTINAL SYMPTOMATOLOGY*

By

JOHN H. MORRISSEY, M.D., F.A.C.S.,

40 E. 41st Street,
NEW YORK CITY.

The association of gastro-intestinal disturbances in connection with renal disease has its commonest recognition, perhaps, in the accompanying nausea and vomiting of chronic nephritis. The stomach and intestinal symptoms seen in acute surgical conditions of the kidney pelvis and ureter and principally noted in stone and other obstructions are also familiar and the text-book descriptions of the so-called Dietl's crisis always included an enumeration of these phenomena.

The factor of chronic, non-suppurating kidney disease serving as a basis of reflex disturbance in the stomach and upper and lower intestinal tract is not generally borne in mind. Movable kidney up to ten years ago was a common diagnosis. In a study from the Johns Hopkins Hospital, 177 cases of movable right kidney were reported. Sixty-eight or 38% had solely stomach symptoms. Operation done on the 68 was followed by marked relief in 46 or 69%.

The development of pyelography has dismissed the diagnosis of mobility as an entity and pointed out wherein the resulting pelvic and cortical changes resulting from the mobility were more to be reckoned with, and that relief or amelioration of these conditions contributed largely to a diminution or a cessation of symptoms. In a communication before the Harlem Medical Society in New York in 1924, the writer called attention to varied stomach conditions met with in kidney disease and reported a series of cases illustrating this point.

*Read before Providence Medical Association, March 7, 1927.

As illustrating the occurrence of gastro-intestinal symptoms in a long period of years, the following cases will serve:—

Mrs. H. B., age 49.

Treated at clinic of St. Bartholomew's Hospital for past six years. Original symptoms chiefly gastric in the form of distress after meals, occasional belching and rarely nausea and vomiting. Several gastro-intestinal series made and showed no abnormality of tract. Analysis of stomach contents showed slight increase in acidity and excessive mucus. No exacerbation of symptoms during past four years and symptoms usually more marked at noon and night. No pain over stomach unless the occasional sense of fullness. Moderate relief from soda bicarb. Urine examination shows occasional pus cell and

FIG. 1

Note complete destruction of right kidney which exists merely as a shell. Case 1.

red blood corpuscles. Faint trace of albumen. Cystoscopic examination performed at the New York Hospital. Both ureters catheterized without difficulty, bladder negative. Excretion from left side normal—P. S. P. appears in 3½ minutes with good concentration. Dye appears on right

side in 15 minutes. Excretion on this side very watery and profuse. Polygram done on the right side which shows a shell of kidney the size of a small pear with apparent destruction of entire kidney tissue. Operation advised. Kidney cortex found entirely destroyed and no functional tissue noted. Nephrectomy. Marked improvement and complete disappearance of symptoms. Patient communicated with two years after operation and continues well.

Mrs. R. S., age 32. Referred by Dr. Armistead C. Crump.

Patient has suffered with gastro-intestinal symptoms for four years past. Originally operated on for appendectomy and was told at the time that she had a gastroptosis. Later exploratory laparotomy and gall bladder drained. Discomfort continues in the form of attacks of pain over the gall bladder, radiating into the right shoulder. Patient also has marked precordial distress and was told that she had heart trouble. Treated for this condition with digitalis and has been using amyl nitrate during the attacks. Urine examination showed a few red blood cells and an occasional pus cell. Cystoscopy done at St. Bartholomew Hospital showed kidney on right side less active than opposite side. Phenol-sulphonephthalein appears on left side in three minutes and on the right side in six minutes. Total excretion on the right side is 2.5% and on the left side 4%. Pyelogram shows a markedly ptosed kidney with dilatation of the pelvic ureter and a moderate hydronephrosis. There was also considerable evidence of inflammatory dilatation of the mucosa of the ureter and pelvis. Patient given dilatations at monthly intervals for six months and pelvic lavage with silver nitrate. Marked relief of symptoms following these treatments but attacks returned and there was no improvement noted in the cardiac condition. Cystoscopy done at New York Hospital one year later and at that time pelvis noted as dilated to one third greater size with lessened function. P. S. P. appears in six minutes and appears on good side in three minutes. Operation advised but refused by patient. Later consulted Doctor J. Bentley Squier who did a nephropexy on this side. Patient seen six months later with marked relief of symptoms and complete disappearance of gastric distress.

In a consideration of the causes which may produce these localized changes, accessory and aberrant renal blood vessels must be given thought. Eisendrath's original communication on the subject still remains the most classical study available, and further progress must come from constantly bearing in mind the possibility of this anomaly in all pelvic changes, particularly where

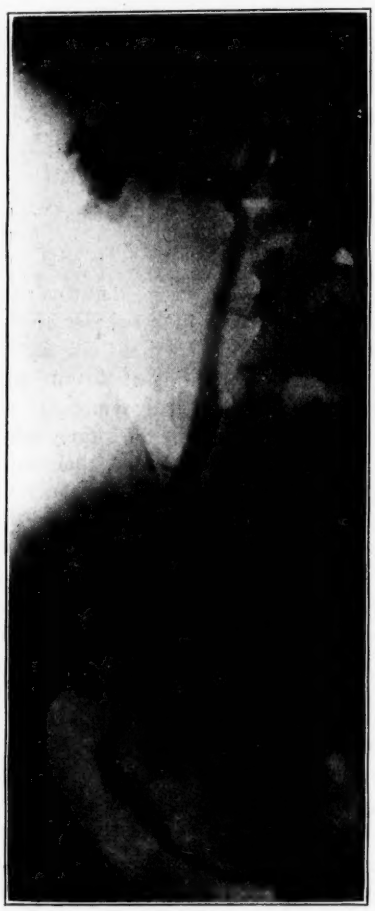

FIG. 2

Pyelogram of Case No. 2—Referred by Dr. Crump. Mrs. S. Note sagging kidney shadow, slight hydronephrosis and angulation of ureter in upper pole.

infection has not been demonstrated. Dilatation of the kidney pelvis and ureter occurs in response to two factors; (a) infection with intermittent obstruction and inadequate drainage, and (b) intermittent obstruction either without infection entirely or with infection to a pronounced degree as to render the urine irritating. Anomalies affecting the blood supply to the kidney occur in

nearly 50 per cent of cases. The renal arteries are usually increased in number, or divide at once—before reaching the hilum—into several branches—foetal condition in the human species

FIG. 3

Radiograph of patient examined for hematuria. Blood seen coming from right ureter. X-ray shows shadow of eight gall stones apparently in same position as kidney. Signet ring shadow of stone however typical of gall stone. No symptoms from these stones with exception of hematuria and definite gastro-intestinal disturbances.

that are permanent in many birds and reptiles. Accessory or supernumerary veins are much more rarely found.

The mechanism responsible for the diffusion of irritating impulses which are subsequently developed into symptoms in other organs is dependent on the common sympathetic nerve supply of the kidney and upper gastro-intestinal tract. Further development of this principle makes it possible to lay down a series of zones almost corresponding to cranial disturbances, wherein three separate groups of symptoms may be noted as corresponding to the individual innervations of the portions of the genito-urinary tract, e. g.—1. the kidney and its capsule—2. the ureter and the bladder, prostrate and seminal vesicles.

The nerves of the kidney are derived from the renal plexus formed by contributions from the solar and aortic plexuses and the last splanchnic nerve. The plexus accompanies the renal artery, which it surrounds with its mesh-work, into the pelvis; within the later if formed a well-marked perivascular net-work from which a number of twigs are given off to supply the walls of the pelvis and ureter, while the majority accompany the vessels into the kidney. The investigations of Retzius, Kolliker, Disse, Berkley, and especially of Smirnow, have shown that all the renal blood vessels are generously provided with fibres for the supply of the muscular tissue of their walls. In continuation the nerve-fibres pass between the uriniferous tubules and form plexuses surrounding the membrana propria.

The ultimate fibrillæ within the tubules have their free endings lying between the epithelial cells. The vessels and tubules of the medulla are provided with similar but less closely disposed nervous filaments which are destined chiefly for the muscular tissue. The nerves of the kidney include some sensory and both medullated and non-medullated fibres. The fibrous capsule also possesses a rich nervous supply.

This is most important, because it is through this innervation that most symptoms are transmitted. The capsule and pelvis of the kidney are the sensitive portions and renal pain, not dependent on infection, or on the irritation of a

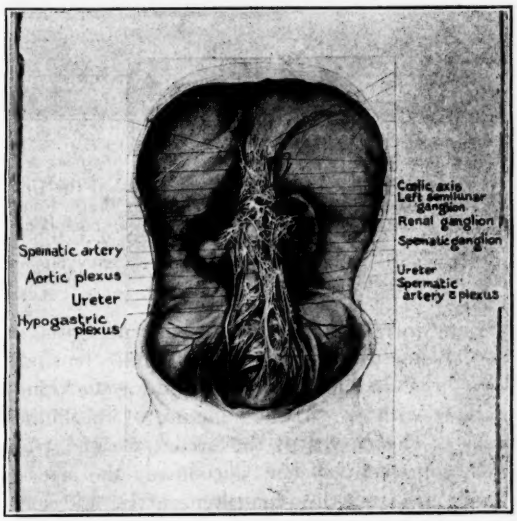

FIG. 4

Plate showing intimate innervation of the kidney and its connection with the solar plexus. Note corresponding innervation of ureter and hypogastric plexus and densely intercommunicating nerve supply of the entire region.

calculus or on displacement, usually means increased tension. The great relief of both pain and congestion that is often experienced after nephrotomies that are merely exploratory depend on the relief of the tension. Occasional cures of

Fig. 5

Pyelogram of a case through the courtesy of the Urological Department of the James Buchanan Brady Foundation of the New York Hospital. Patient complained definitely of gastro-intestinal symptons. Note degree of hydronephrosis, obliterated major calyces with blunted end and angulation of ureter.

various forms of acute or subacute nephritis, or of "albuminuria associated with kidney tension," have been obtained merely by splitting the kidney capsule with or without puncture of the kidney itself. The nerves of the ureter, derived from the sympathetic system, accompany the arteries and come from the renal, hypogastric and spermatic plexuses. Within the adventitia they form a plexus containing numerous microscopic ganglia, the largest of which are at the upper and lower ends of the duct. In addition to the fibres supplying the blood vessels, both medullated and non-medullated fibres pass to the muscular and mucous coats.

In general, however, the associated sympathetic nerve supply of the renal cortex and pelvis is the solar plexus. The ureter derives its supply from the hypogastric plexus. This plexus also sends fibres to the intestinal tract. The lower third of the ureter has an accessory innervation from the spermatic or ovarian plexus. From this combined innervation, painful stimuli received in these separate portions of the genito-urinary tract, will be referred, in the absence of a localizing sense in the organ itself, to a neighboring viscus having the same supply. Consequently, lesions limited to the pelvis of the kidney are expressed symptomatically in the form of stomach disturbances and additional involvement of the ureter will include dissemination of the impulses into the lower abdomen. Infection will change this picture, by producing a local congestion and increase vascularity, and provides a definite sensitization. It is to the vast number of cases where infection does not exist that this communication calls attention.

The confusion in gall bladder symptoms is greater, inasmuch as the symptoms may be inexchangeable. A suppurative process in the gall bladder—with or without stone formation may produce renal symptoms reflexly or by mechanical ureter pressure with drainage develop a low grade pyelitis into a sizable condition. Conversely a renal condition may produce gall bladder symptomatology to a degree that operation seems indicated in the gall bladder, in the absence of localizing kidney symptoms. Here the mechanical factor has a definite role.

In movable kidney, pain is due in some cases to traction on the vessels and the resulting congestion of the kidney. This may be so marked at times as to give a hematuria. There is a history of digestive disturbance, constipation in some cases and in other cases jaundice. It is also due to direct traction of the gastro-intestinal tract. The second portion of the duodenum is dragged upon through its areolar tissue connection with the right kidney; its lack of mesentery prevents it from moving forward, and it is stretched so that its lumen is diminished, and interference with the digestive current and secondary dilatation of the stomach follow. At the same time the bile ducts are elongated and nar-

rowed and the passage of bile through them is interfered with. On the left side similar disturbance of digestion may follow the pull of the kidney on the stomach and colon. In the traction upon the vessels themselves the compressible renal vein is more readily affected, and the arterial supply is maintained to a degree sufficient to give a hematuria.

I have selected a group of cases in support of this principle in which a distinct degree of pathology has been made out in the upper portion of the genito-urinary tract; and the symptomatology has been entirely gastro-intestinal. Symptoms were present in such a degree as to warrant a G1 series of X-rays in practically every case. They have been referred to

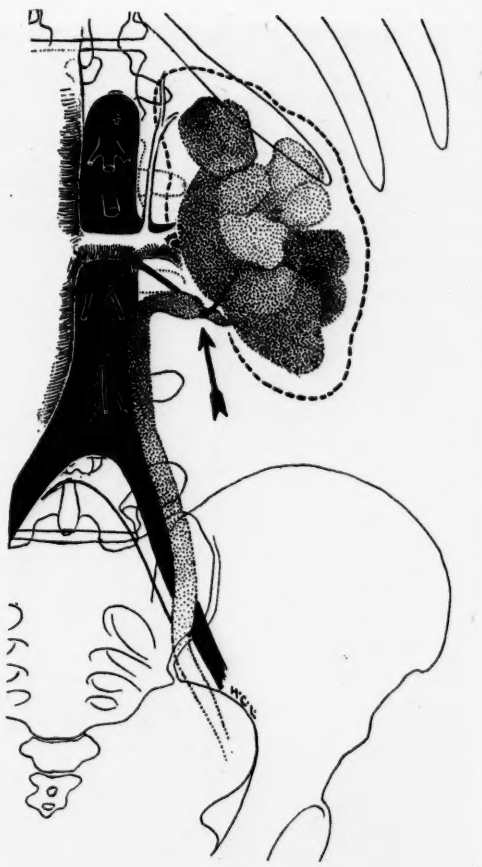

FIG. 6

Pyelogram of case of hydronephrosis due to aberrent artery. Patient had suffered from gastric distress and mild gastro-intestinal symptoms for several years. Never any urinary symptoms. Laterally pain in back. Cystoscopy showed delayed function on left side. P. S. P. appeared in six min. on left side; four min. on right. Operation decided upon and considerable normal renal tissue found. Aberrent artery identified and severed—kidney spared. Six months afterwards kidney one-third its size and functioning normally. Note diagram showing anatomical condition.

me for kidney examination either on account of the presence of pus in the urine and more recently since I have shown the importance of kidney examination, to eliminate kidney pathology. It is interesting to note distribution of the cases from the standpoint of urological diagnosis.

Of 128 cases examined, 104 or 75% showed positive findings which I felt accounted for the symptoms. There were 18 cases of undue mobility with and without infection. Thirty cases of pyelonephritis with or without renal mobility,

FIG. 7

Ureterogram of case presenting gastric symptoms accompanied by right-sided pain. Impossible to fill pelvis owing to obstruction at upper end of ureter. Diminished function on this side. At operation, practically the identical condition as noted in figure 6 found. Aberrent vessels severed, kidney fixed in position and wound closed tight. Recovery —freedom from symptoms for one year following operation.

30 cases of hydroneophrosis and hydro-ureter. Eight cases of kidney tumor, six cases of polycystic disease of the kidney and twelve cases of stone in the kidney.

For the purpose of study 128 cases were grouped comprising 68 cases from St. Bartholomew's Hospital, 29 cases from New York Hospital and 31 cases from my own practice. This series compiled over a year ago is now considerably increased.

It may seem strange that the urinary findings were not more constantly present in these cases, and this is particularly true in case of the tumors but the explanation is that at that particular time the tumor was not bleeding and in most of these cases the urinary findings were explained by the diagnosis of chronic cystitis.

It is well recognized that a low grade inflammatory process may be in existence for a long period of time, and if adequate drainage is provided the kidney extension is so gradual that local symptoms are absent. A pyonephrosis is always the result of a secondary infection in the presence of acute obstruction.

The principal factor in the development of a localization sense is inflammation. In these cases the pain described is not distinctly renal but rather such sensations as dull throbbing, aching, etc. A fitting example of the course of pain as a result of the inflammatory change and also illustrative of the idea of my original statement regarding distribution of pain is seen in the case of acute appendicitis. Here the pain at first is epigastric, later as inflammatory change takes place in the neighborhood of the cecum the symptoms are entirely restricted to that area.

CONCLUSIONS

1. In the absence of demonstrable gastric or duodenal lesions in cases presenting gastro-intestinal symptoms, the possibility of reflex irritations from surgical kidney disease must be borne in mind.

2. With the occasional exceptions of acute nausea and vomiting, the symptoms seem limited to gas eructations, distress principally after meals, sense of fullness in the epigastrium, cardiac distress and similar functional disturbances.

3. In very exceptional cases of movable kidney attacks of pain occur which in every way simulate those of hepatic colic, such attacks being usually associated with jaundice. The location of pain in the attacks is always near the middle line, the radiation is toward the shoulder-blade, and injection of the kidney pelvis will not reproduce the pain. The jaundice associated with movable kidney is usually of short duration and not of great intensity.

SANITARY INSPECTION OF FOOD*

By

Howard A. Streeter, M.D.,
Health Officer, Manchester, N. H.

There are often so many types or kinds of inspections pertaining to the same object but designed to secure differing results that it is difficult to define within well recognized limits the scope of a particular activity. When food inspection is mentioned we instinctively think of purity, of adulteration, of substitution, of misbranding and of other things or conditions affecting or relating to the wholesomeness of the product. It must be admitted that in a strict sense it is difficult or well nigh impossible to absolutely separate sanitary from the purity inspection as pertaining to food because so often an impurity is also insanitary, and too if an individual or firm who manufactures food or prepares foods for sale is so unscrupulous as to adulterate the product, he is liable to be none too particular of the sanitary conditions of his establishment; hence, it generally happens that both purity and sanitary inspection must be combined to protect the consumer.

The old fashioned individual who constantly bemoans present day conditions and sighs for the past does not forget foods and food products in his lamentations but here, as elsewhere, he often displays a woeful lack of knowledge. Two and a half centuries before the Christian era, Archimedes demonstrated alloy in the crown worn by King Hiero. If workers in precious metals were not unwilling to cheat their king it is fair to assume that food purveyors might not be too scrupulous. In the heyday of the Roman Empire practices and conditions became so notorious that rulers were obliged to issue edicts. During the middle ages food merchants became so bold that severe penalties, even burning at the stake, were necessary to bring to merchants a realization of their obligations to society in general.

In the early days of this country foods were either produced by the householder or obtained by barter with a neighbor. Either method presented no incentive for deception. This period of frank honesty was soon followed by one of rank dishonesty which persisted until large exporters in a frenzied effort to save their fast declining foreign trade asked, yea practically demanded federal inspection and federal guarantees for their products intended not for home consumption but for export trade. This was quickly followed by federal inspection for all products intended for interstate shipment. States and municipalities passed laws, rules and regulations governing manufacture and preparation of foods and food products sold within their several jurisdictions. These laws and regulations governed not only the sanitary but also the purity aspect of food preparations.

This is only a bare outline of past conditions but it serves to show the reason for present day food laws and regulations.

Food affects our health and efficiency and hence the aim of the food inspection is or should be to insure a safe, wholesome supply.

What does sanitary inspection mean? Sanitary is defined as "pertaining to or designed to secure health;" inspection—"a look on or into, a prying examination, official view or examination;" thus sanitary inspection is "an official view or examination designed to secure health," or as applied to the present discussion "an official examination designed to prevent impairment of health by foods."

Food inspection as such may be divided and subdivided almost ad infinitum but concisely it may be considered under three headings—adulteration, substitution, sanitation—the last of which is the topic under consideration.

It must be remembered that certain practices which at first sight might appear contrary to sanitary proceedure have been legalized either by decision or by direct statute; for example, use of synthetic flavors, and synthetic colors is permitted if the same have been approved and are declared on the label although it is often difficult, to say the least, to find such declaration. Furthermore, colors are allowed in some foods and not in others—for instance it is legal to color butter without any declaration but illegal to color oleomargerine with declaration. The common soft drink, pop, carbonated beverage or whatever may be its designation is hardly in most instances more than a synthetic preparation capable, if the

*Read before the New England Health Institute held in Providence, R. I., Sept. 27 to 30, 1927.

proper kinds are used, of coloring one's insides a crazy patch design that would be the envy of the most ardent lover of that type of quilt and yet if sanitary rules are observed in its manufacture and the cap bears an insignificant legend 'Artificial color and flavor' the food inspector has no jurisdiction.

The types and amount of sanitary food inspection conducted by a health department depend in no small measure upon the size of the community, its location as regards available food supplies, the character of its population, and particularly of its merchants, and merchandising practices and upon funds appropriated.

Milk inspection, slaughter inspection, market inspection are generally included in the activities of health departments—other types of food inspectors are added as conditions warrant.

Sanitary food inspection, as stated above, should be conducted for the purpose of preventing contamination of foods by elements which are generally considered unclean and whose entrance into food products can be prevented.

Rules and regulations defining procedures to be followed in storing, manufacturing, displaying, or merchandising foods must be drawn to protect the consumer and at the same time must regard the rights of the merchant or producer. Neither the consumer nor the merchant should be considered solely because the one might be too severe while the other would probably be too lax. It would appear wise to establish a line of procedure which would give protection and at the same time could be defended with success should occasion arise.

Production of foods easily comes under two headings—those produced or grown in the open and those compounded or prepared within a building. Little supervision of foods growing in the open is necessary other than to note places where vegetables liable to be eaten raw are grown or to note the kind of fertilizer used in such places. While it is agreed that thorough washing removes contaminating elements, yet if this class of vegetables can be grown in spots known to be free from possible baneful elements, the degree of safety is greater. Manifestly it is practically impossible for the health department to inspect every garden from which vegetables may be shipped to its jurisdiction but in outbreaks of intestinal diseases it is wise to know if possible the source of green vegetable supplies.

Use of arsenite or other sprays is presenting a problem which appears to be solved. However, an alert inspector should know something of the state of fruits and vegetables shipped to his city.

Inspection at the point of preparation of animals and fowl for food purposes makes unnecessary any extended attention at the point of merchandizing except in so far as such inspection may be necessary to secure compliance with general sanitary laws.

Inspection of places where foods are compounded or prepared for market will vary in kind and amount as there may be variation in kind and amount of food products prepared. Arrangements in a slaughterhouse would hardly befit a candy kitchen or ice cream plant; a factory where berries are canned would require different apparatus and arrangement than would be necessary in a factory preparing meat products, and so on. In fine, factories, or plants, or establishments where foods are prepared should be arranged and equipped to meet the needs of the business to be conducted therein and at all times should be clean and sanitary, due consideration being given to the business in question. To require compliance with proper rules and regulations and practices is the duty of the food inspector. This task is comparatively simple now because food manufacturers have learned that strict compliance with federal and state laws is essential to a successful business and further these firms are seeking inspection that it may be possible to so label the finished product.

The retailer generally comes under the exclusive attention of the local health department and here as in the case of the large manufacturer requirements must be in keeping with the business. Certain general requirements as healthy workers, clean, washable outer garments, proper toilet facilities, adequate waste receptacles, screening of doors, windows and other openings during the fly season, apply with equal force to all shops where food is sold. Conditions under which foods may be displayed or offered for sale may affect materially the state of the food before it reaches the consumer. It is difficult to make some shopkeepers realize that sidewalk or open window displays of fruits, berries, con-

fectionery, crackers and other foods is not necessary to entice customers. If the merchant must depend upon psychology to sell his goods, he should revise his code and learn that a customer who enters a store may see other goods and in addition an attractive display protected against contamination will sell where carelessness will repel.

Open air markets may be in principle a boon to the housewife but they present to the food official a real problem the solution of which often requires a goodly amount of wisdom.

As a rule dealers in foods are willing to comply with any reasonable suggestion which will aid to protect or improve their product.

Legal measures controlling foods and food products consist of federal, state, and local laws, rules, and regulations.

Federal Laws. Soon after the Spanish War, the American Press began an agitation for investigation into packing house practices. This was followed by a decline in the European demand for American meats and meat products. Because of this decline in their export trade, American packers asked for federal inspection which was granted for export articles only. A fresh and insistent demand by the home consumer resulted in federal inspection for all products. This was soon followed by the Pure Food and Drug Law. The federal law, Food and Drug, applies only to products shipped interstate, its provisions apply more to the finished product than to methods of its manufacture and to conditions which may obtain in any shop or factory where foods are prepared. Essentially the federal law is concerned with the purity of the end product but to obtain purity and to meet the requirements the manufacturer must observe sanitary practices; hence, the U. S. Pure Food Law is also a sanitary food law. The federal meat inspection law controls the sanitation of packing houses and the wholesomeness of the end product.

State Laws are patterned much after the federal law and were passed to control foods made and sold within the borders of the several states, with variations to meet local conditions.

New England laws, and please understand reference is now made to sanitary laws, vary from strict state provisions to a procedure which places the burden entirely upon the local community.

Maine. The Commissioner of Agriculture is directed to make uniform rules and regulations governing preparation and sale of foods and to establish standards. Regulations passed under this authority clearly define precautions to be taken in preparation of foods; standards which must be met; and insanitary procedures which must be avoided. The commissioner of agriculture is the chief enforcement officer. The law does not state whether the commissioner may deputize the local health officials to secure enforcement within their several communities nor does it provide that the local officer shall enforce, nor is a local board of health given authority to make local regulations, or rather, it might be more correct to say, that such provisions have not been found.

New Hampshire has two distinct laws—a pure food and drug law and a sanitary food law. Under provisions of both laws, the State Board of Health is directed to make necessary rules and regulations. The pure food law is enforced by the State Board of Health and by such agents as it may designate.

The Sanitary Food Law distinctly states that local health officers shall assist in its enforcement.

Vermont has one law, the Pure Food and Drug Law, which embodies sanitary and purity inspection under one heading. This law specifically states that certain officials of the State Board of Health and local health officers are the enforcement officials.

The Massachusetts Law empowers local Boards of Health to pass sanitary food regulations subject to approval by the State Department of Health. Pure food laws and regulations are administered by the State Department of Health.

Conn. There is no state sanitary food law but local boards of health have authority to pass local regulations.

Rhode Island. Enforcement of food and drug laws in Rhode Island is vested in a board of food and drug commissioners. While there is no specific sanitary food law, sanitary practices are defined in the general law.

In addition to the general laws, and this applies to all New England states, there are specific laws applicable to certain commodities, as milk, ice cream, butter, vinegar, slaughtering, bottled drinks, canning, which embody certain sanitary standards.

Thus in New England sanitary food laws and regulations range from a standard set by a state department to a standard wholly within the jurisdiction and prerogative of the local board of health. It is fair to assume that the varied methods are satisfactory and ample and that it is possible to secure results in keeping with modern sanitary practices.

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FREDERICK N. BROWN, M.D., *Editor*
309 Olney Street, Providence, R. I.

CREIGHTON W. SKELTON, M.D., *Business Manager*
166 Broad Street, Providence, R. I.

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PROVIDENCE

Meets the first Monday in each month excepting July, August and September

EDWARD S. BRACKETT	*President*	Providence
P. P. CHASE	*Secretary*	Providence

WASHINGTON

Meets the second Thursday in January, April, July and October

JOHN PAUL JONES	*President*	Wakefield
JOHN CHAMPLIN, JR.	*Secretary*	Westerly

WOONSOCKET

Meets the second Thursday in each month excepting July and August

T. J. MCLAUGHLIN	*President*	Woonsocket
WILLIAM A. KING	*Secretary*	Woonsocket

R. I. Ophthalmological and Otological Society—2d Thursday—October, December, February, April and Annual at call of President. Dr. Francis B. Sargent, President; Dr. Joseph E. Raia, Secretary-Treasurer.

The R. I. Medico-Legal Society—Last Thursday—January, April, June and October. Dr. Creighton W. Skelton, President; Dr. Jacob S. Kelley, Secretary-Treasurer.

EDITORIALS

DIONYSIUS AND APHRODITE

Adolescents of the present day are placed in a peculiarly difficult position as regards the use of alcoholic beverages. Up to the last decade the youth of the land could look up to its elders and presumably betters as those who had decided openly and honestly upon their personal habits regarding the use of alcohol. Escapades alcoholic were common then, as now, and were all in the process of the crystallization of the habits of the individual—for better or for worse perhaps—and not always without consequences. And now—what is the difference? Since the Great War and the Eighteenth Amendment the situation has changed in that now it is no more an honest matter to deal in alcoholics, and the zest of stolen fruit adds no little to the glamour of Bacchus beckoning to the boy. What can be expected of youth when it sees age, and middle-age, ever its patterns of action, entertaining bootleggers at its back doors and sneaking liquor into its clubs and homes.

All this is as familiar as the passing of the air mail plane across the sky. Both are facts of progress, whether forward or backward.

But there is another side to the matter. If it is true that despite the lack of help from the great majority of those of mature years, the young men of today are about as their fathers were in the matter of the consumption of alcohol, it is also true that many of the young women, the girls of "good family", are as free in this matter as are their brothers. This spells trouble. Dionysius, god of wine, was the son of Aphrodite. The characteristic action during the spasmodic or in the persistent use of alcohol is the weakening of inhibitions. While no statistics are available, it is probably not unfair to say that a great majority of those indiscretions which result in the acquiring of venereal disease are the result of this characteristic action of alcohol. Unquestionably if its use could be controlled the venereal disease problem, one of the most urgent of those confronting society today, would be eighty per cent solved. The open frankness and intellectual honesty of the rising generation may be its salvation in this as in many other of its problems. "Forewarned is forearmed" and the Journal believes that it is the duty of our profession to see that sane and irrefutable truths are placed before the youth of the country and the parents who must add not lip service only but the influence of practical example if they would guard their sons, and, especially, their daughters, from disaster.

"LABORATORIES"

An interesting newspaper advertisement arrested our attention because of its size and conspicuousness calling attention to the fact that a "Diet Laboratory" could be consulted and estimates of corrective diet, basal metabolism, blood and urine chemistry made and furnished. If this is not the practice of medicine we do not know what it is. The possibilities for good and evil of such an establishment are not at first apparent but with a little thought we begin to realize that the proprietor of such an establishment is assuming a responsibility of great moment and importance. The role of nurses in the practise of medicine has before now been discussed in these pages. Diagnosis, treatment and operations seem to be within their means and capabilities and there has been no dissenting voice. Comes now the advertisement of a diagnostic factor which makes one gasp. Not long ago the one of our very ablest internal medicine men agreed with the writer that the chemistry of the blood was as yet in a very unsatisfactory state and that there were very few if any capable of accurately estimating blood calcium. One of the latest and supposedly the best books on chemical diagnosis did not treat of this subject except to quote a single monograph. The study of basal metabolism is one for an expert medical graduate and as to diet it alone is not enough to rely on in a case and even medical men ponder carefully before prescribing—please note the word. Another consideration is worthy of notice—the tremendous advantage that newspaper advertising gives. This person is able to immediately bring herself before say fifty thousand persons, a thing that a reputable physician might be glad to do were he not forbidden by the ethics of the profession. Indeed there are quite a few eminently ethical physicians who feel that the medical profession is more limited than it should be in its advertising. But this person without let or hindrance is in exactly the same case as a physician but without danger of suit for malpractise, of loss of professional status, of loss of reputation or any of the other things which medical men hold precious. She is furthermore in a position to do much harm and to spread false doctrine heresy and schism.

What is the use of medical examination and registration if a non-professional person can make diagnosis, give advice, present the patient with medicine and tell him when to come to the office next? Yet this is exactly what industrial and other nurses are doing daily. What availeth the restraints of medical ethics when a nurse or technician can advertise in the newspapers and bring his talents before the public. Of what use is a medical education when a charlatan can put Dr. on his sign and claim a knowledge of osteology when he does not even know the names of the bones, much less their topography and functions?

The remedy. That is not the function of this article or of this Journal but it may well be said that if there is a law it should be invoked and offenders restrained and punished and if there is no law there should be. Each year the non-professional practitioners become more and more brazen and flagrant, their propaganda more

active, their practises more vicious, their victims more numerous. The popular intelligence is being lowered, its judgment debased. Whoever is responsible for this state of things should be invoked and the medical profession should be active in seeing that the law is obeyed and that there is suitable legislation to meet the situation.

IMMUNIZATION AGAINST AND SERUM TREATMENT OF SCARLET FEVER

The successful human inoculation of scarlet fever by the Dicks has led to renewed interest in this disease. While successful human inoculation had previously been done by the injection of the secretions of the nose and throat of scarlet fever patients, the Dicks were the first to accomplish it by the injection of one kind or organism. To be sure they did not entirely fulfil Koch's postulates yet their work has received a great deal of credence.

There are several kinds of hemolytic streptococci but as yet there is no laboratory technique by which the scarlet fever hemolytic streptococcus can be identified. The method now used is to inject the toxin produced by a given strain into the skin of persons who have had scarlet fever and those who have not, relying on the Dick test. This is not scientific nor is it reliable. If there was available a scientific method of identifying the scarlet fever hemolytic streptococcus, the diagnosis of doubtful cases, and the determination of the length of isolation would be made much simpler.

In certain cities scarlet fever patients, or those suspected of having scarlet fever, are cultured for hemolytic streptococci and if any are present the diagnosis is confirmed. This is, of course, not a safe procedure. It should be stated, however, that a very large percentage of scarlet fever patients when cultured are found to have hemolytic-streptococci in their throats. Obviously, negative cultures, two at least, should be given more consideration than positive cultures, since the hemolytic-streptoccus found may not be the one which causes scarlet fever. Likewise patients in some cities are released from quarantine as soon as negative cultures are obtained. The reliability of this procedure remains to be determined. So also is the practice of continuing isolation as long as streptococci are found in the throat. Isolation might be unnecessarily prolonged.

The value of the Dick test is questionable. It is often positive in persons who have recently had scarlet fever and negative in persons who subsequently contract scarlet fever. Some companies which put out biological supplies do not sell the toxin for the Dick test. It may be that it can be made more accurate by perfecting the toxin used, but at present the test is unreliable. There is reason to believe, however, that scarlet fever toxin is of considerable value in producing immunity. Hospitals for contagious diseases are now using it with encouraging results. Five doses, each a week apart, is to be used, according to the advice of the Dicks. The inoculations are quite often attended by local and general reactions which, however, are not serious but sometimes rather distressing.

Scarlet fever anti-toxin is made by injecting horses with ascending doses of scarlet fever toxin, scarlet fever germs or by a combined method. Until recently the serum was unconcentrated and the urticarial rashes and serum sickness has been very distressing and frequent. It has now been concentrated and while they are less severe they are rather frequent.

Scarlet fever anti-toxin has been used in some hospitals more or less, routinely. It has been claimed that by its use the course of the disease is shortened and complications are lessened. This is debatable. It is very doubtful whether complications are less frequent. Its value in overcoming toxemia early in the disease is rather well established. It should be given during the first three days of the disease to get the best results. Its use is indicated when the attack is attended with high fever, delirium and other signs of severe toxemia. In some cases the temperature falls rapidly and constitutional symptoms are greatly improved. In other cases there is a temporary improvement and a second dose is indicated, if the temperature goes up again. It will, however, not save all the severe cases, whether they are purely toxic or when streptococcic bacteriemia is present. In fact all the bacteriemia cases succumb.

A physician in Warsaw whom the writer knows writes that the death rate in this city,

which is normally about 20%, has been reduced to 12% by the use of serum. Scarlet fever antitoxin is undoubtedly of great value in selected cases. Because it is not necessary in the ordinary case and because of its expense, it should be reserved for the more serious cases.

Passive immunity against Scarlet fever is claimed to have been obtained by the injection of convalescent human serum and scarlet fever anti-toxin. At the best the protection is short lived and the value of either method is questionable. The frequency and severity of the serum reactions has also discouraged its use. However, the rather severe serum reactions will, without doubt, be overcome, just as they were in the case of diphtheria anti-toxin.

SOCIETIES

Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Edward S. Brackett Monday evening, March 5, 1928 at 8:45 o'clock. The records of the last meeting were read and approved.

Dr. Hawkes read an obituary on Dr. W. G. Dwinell. It was voted that this be spread on the records and a copy sent to the family. A letter was read from the Rhode Island Tuberculosis League announcing a campaign and it was voted that the Association endorse this. A letter from the Dayton Chamber of Commerce protesting a bill recently presented at Washington to stop the government printing of stamped envelopes was referred to Dr. Mowry who is writing a letter. Dr. J. B. McKenna read an obituary on Dr. Edward F. McKenna and it was voted that this be sent to the family and a copy spread on the records.

Dr. Guy Wells read the first paper of the evening on Hypothyroidism. After a short reference to the history he described a typical case. A much larger group do not complain of the typical symptoms or show the typical signs but have a low metabolic rate and usually run a subnormal temperature. A number of case histories were given. The figures of metabolic rates on a series of hospital and office cases were shown. The treatment is the giving of thyroid checked by metabolic rates and a maintenance dose can be determined.

The second paper was on General Management of Thyroid Conditions by Dr. Frank H. Lahey of Boston. He discussed the clinical phases. The unit of the thyroid is the acinus surrounded by epithelial cells. A normal thyroid has a small amount of colloid in the acimus. The colloid is probably not secretion. In the endemic goitre the amount of colloid is large. The end stage downward is the nodular goitre where many acini are ruptured together. In the upper stage the epithelium enlarges and the colloid in the acini decreases. Involution is downward. Hyperplasia upwards. Adolescent goitre with visible isthmus does not need treatment here by the sea where there is plenty of iodine. Graves disease or exophthalmic goitre is an over activity of whole thyroid gland. Often there is no previous goitre. Toxic adenomata or second hyperthyroidism is over acticity of previous existing adenoma. It usually occurs after 40 years of age. Exophthalmic goitre usually occurs before 40 years of age. Four-fifths to five-sixths of exophthalmic goitre must be removed to cure. Removal of the adenomata will cure *them*. Goitre, exophthalmos, tachycarida and tremors may all be absent in hyperthyroidism. Fixation of eye or stare is practically always present. True active hyperthyroidism does not have normal metabolic rate. No drug will reduce the basal metabolism in toxic goitre. Rest, X-ray and radium may do this but they are uncertain. Any toxic case is in danger of a crisis and death. Iodine is of value in getting the patient ready for operation and in the crises but the improvement lasts a few weeks and then the trouble recurs. Adenomata are always in danger of becoming malignant and then are practically hopeless. The operative danger is very slight. Thyroiditis is hard and tender and should be carefully watched as it frequently results in myxedema. Following Dr. Lahey showed a series of slides illustrating cases and different gland conditions. The papers were discussed by Doctors Perkins, C. O. Cooke, Fulton, Cameron, Brackett and Lahey. The meeting

adjourned at 11:05 P. M. with a rising vote of thanks to Dr. Lahey. Attendance 134.

Collation was served.

Respectfully submitted

PETER PINEO CHASE
Secretary.

The regular monthly meeting of the Providence Medical Association was called to order by the President, Monday evening, April 2, 1928 at 8:45 o'clock. The records of the last meeting were read and approved. The standing committee having approved their applications the following were elected to membership:—Catherine E. O'Meara and Egbert V. Conrad. A letter from J. Edwards Kerney regarding the Blue Book Directory of the Physicians of Providence was read and laid on the table. Dr. McLeod of Newport, President of the State Society was a visitor at the meeting and addressed the members.

The first paper of the evening was read by Dr. Julius G. Kelley on "Blood Transfusion." He spoke first on iso agglutination and the recognition of, four groups with their characteristics giving the table of reactions. He then gave the technique of grouping. The donor should be carefully studied to eliminate all disease. The symptoms following transfusion of incompatable blood should be quickly recognized and transfusion stopped. A description of an actual hemolytic reaction was given. The commonest reaction is due to the instability of the blood when removed from the body so efficiency of technique is valuable. Transfusion is indicated in severe hemorrhages, secondary anemia, chronic sepsis and all primary blood diseases except possibly pernicious anemia. A short description of the principal techniques for transfusion with and without anti-coagulents was given and a discussion of 41 cases at the Rhode Island Hospital during the past year. The paper was discussed by Drs. Burgess, McCann and Kelley.

The second paper by Dr. H. A. Lawson was on the "Treatment of Pernicious Anemia by Liver and Extracts or Fractions of Liver." Its efficacy is established beyond doubt. The amount of liver given has been as high as 360 grams but these large amounts frequently cause anorexia or vomiting. Raw pulp is usually taken. Meats, fats and vegetables are given in large amounts but carbohydrates are kept low. Reticulated or young cells are seen to increase quickly after this diet is started. Red blood cells and hemoglobin increase somewhat later as do the blood platelets. The lower the blood count the greater the rise in reticulated cells after liver. A number of lantern slides illustrated these points. The patient's general condition improves with these changes. Achlorhydria persists however, as do many nervous symptoms. As far as is now known the patient must continue a liver diet although not in such large amounts. Dr. Lawson then gave an account of the production in the laboratory of the small fraction of liver substance which contains the active principle. Questions were asked by Drs. Brackett and Jones.

Meeting adjourned at 10:40 P. M. Attendance 109. Collation was served.

Respectfully submitted

PETER PINEO CHASE
Secretary

HOSPITALS

THE MEMORIAL HOSPITAL

The following is a copy of the minutes of the Memorial Hospital Staff meeting held April 5, 1928:

"Meeting called to order by President Wheaton at 9:22 P. M. A motion approving the action of the President in appointing Drs. Holt, Henry and Sprague to attend the funeral of Dr. L. J. Gilroy was made and passed.

The President appointed a Committee on resolutions with reference to the death of Dr. L. J. Gilroy—Drs. Hammond, Sweet and Henry—and instructed the Secretary to notify them. These resolutions to be prepared and presented at the next regular meeting of the Staff.

Motion made, seconded and passed approving the action of the Treasurer in sending a wreath of flowers to the funeral of Dr. Gilroy, in the sum of ten dollars ($10.00).

Dr. D. L. Richardson spoke interestingly on "Latest Developments on Diagnosis and Treat-

ment of Scarlet Fever." The discussion was led by Drs. Holt, Winkler and Bates.

The President extended a vote of thanks to Dr. Richardson for his very interesting paper.

Meeting adjourned at 10:43 P. M.

STANLEY SPRAGUE, M.D.
Secretary, pro. tem.

OBITUARY

Dr. William Grout Dwinell died in Providence, September 21, 1927, and was buried in the cemetery in East St. Johnsbury, Vermont.

He was born in St. Johnsbury, June 9, 1878, the son of Charles H. and Mary Grout Dwinell. Through his mother's side of the family, he was related to several men whose names stand out prominently in the records of Vermont State. One uncle, Josiah Grout, was a former Governor of Vermont, and another, William Grout, was for eighteen years a Congressman, and also a General in the Union Army, in the Civil War. A cousin, Aaron Grout, recently resigned as Secretary of State, in Vermont.

He obtained his early education at St. Johnsbury Academy, which President Coolidge attended, and later at the High School in Malden, Massachusetts. Soon after leaving High School, he became possessed of an irresistible desire to pursue the study and practice of medicine. As an example of his persistence and determination of mind, he prepared himself, practically through his own efforts, for admission to the Harvard Medical School. He entered with, and graduated in, the class of 1901. His rank, during the four years of his Medical School course, placed him amoung the highest of his class, which numbered over one hundred students. After graduation, he served his Internship at the Boston City Hospital. After that, for a while, he was an assistant to the Superintendent, at the same institution.

Dr. Dwinell was first engaged in the general practice of medicine and surgery, with an office on Benefit St., in the block opposite the foot of George St. Later, he moved to Pawtucket.

Soon after Dr. Wright of England presented to the world the advantages of vaccine therapy, Dr. Dwinell decided to give up general practice and to prepare himself to follow one of the scientific branches of the medical profession, in which he was much more interested. Consequently, he spent several months of close application in the laboratory at the Boston City Hospital, where he learned the methods of producing the various vaccines, and their therapeutic administration. He returned to Providence, after the completion of his research work, and opened his laboratory-office first on Greene St. and later on Jackson St. For several years, he did a flourishing business and was the recognized authority in Rhode Island in vaccine work. During the years 1911 to 1915, he held the position of Immunist, at the St. Joseph's Hospital.

When the enthusiasm of the Medical profession over vaccine therapy began to wane, Dr. Dwinell once more turned his attention to one of the newer and more scientific branches of his calling. He withdrew for another several months, this time pursuing his studies in the laboratory of the Peter Bent Brigham Hospital, in Boston. Here he fitted himself in bio-chemistry, for a practice based on Chemistry, Food, Urine, Blood, and Metabolic rate, specializing in nutritional diseases. On returning to Providence, he opened his laboratory-office first on Thayer St. and later, on Hope St., opposite the Hope Reservoir. Again he must be accredited a pioneer in his special line of work in Providence, Rhode Island; this time in a branch that is steadily increasing in usefulness to patients and physicians alike, and also in popularity.

When the United States entered the World War, Dr. Dwinell applied for and received his commission in 1917, as First Lieutenant in the Medical Corps. He was assigned to Camp Dodge, Iowa, where he became Chief of Laboratory, at the Base Hospital, and was promoted to the rank of Major. Here he remained during the period of the war, and became conspicuous for the special study he made of the "Flu" epidemic, and its complication, pneumonia, as it occurred at Camp Dodge. His thesis, "A Laboratory Report on Epidemic Pneumonia," was published in the American Journal of the Medical Sciences, for August 1919.

Dr. Dwinell was always a most affable and companionable man. Although quiet and rather retiring in manner, he nevertheless had a keen

sense of humor. He was thoroughly engrossed in his special lines of work and spent hours of the day, often well into the night, in working out the many problems that confronted him in his laboratory.

It was his intense enthusiasm for his work and his interest in his cases, that drew many patients to him from all over the State. So constantly did he apply himself to his specialty, that he seldom took time for recreation or vacations.

At the time of his death, he was engaged in preparing for publication, a paper based on one thousand cases in his blood chemistry work. An example of his affectionate and sympathetic disposition, was shown in the care and devotion he displayed toward his aged mother, during the latter years of her life.

Dr. Dwinell was taken rather suddenly ill, on February 14, 1927. On examination, a small mass was found attached to his rectum, which proved to be malignant. Both his attending surgeon, and a consultant and classmate from Boston, hoped that it might be completely removed, without subsequent recurrence. The operation was performed, but a second one was necessary later, to give him some degree of comfort. The last few weeks of his life were most distressing to him, both in mind and body, for he thought of his work still unfulfilled, while his body was racked with the pain that he suffered. But through all this trying period, while he grew thinner and weaker and realized just where his condition was leading him, he always appeared as pleasant and uncomplaining, as the unfortunate circumstances would permit.

In his death, the Medical fraternity of Providence and Rhode Island has lost one of its most enthusiastic, and at the same time, one of its most scientifically trained members. He will be mourned by a large number of patients and friends.

During the twenty-five years of his practice, he contributed a number of most instructive papers to the various medical magazines. As frequently happens, his ability was undoubtedly appreciated more, beyond the limits of his own City and State.

On April 11, 1914, Dr. Dwinell married Miss Harriet A. Fish, of Providence, who survives him. He is also survived by a nephew, William Grout Dwinell, 2d, and by a niece, Miss Ruth Dwinell, both of Providence; by Mrs. Charles Johnson of Hartford, Conn., another niece, and by a brother, Charles H. Dwinell. Dr. Dwinell had no children.

He was a member of the Masonic fraternity, the Harvard Club of Rhode Island, the Metacomet Golf Club, the Providence Medical Association, the Rhode Island Medical Society, and the American Medical Association.

FRANK J. JONES
JOSEPH C. O'CONNELL
CHARLES E. HAWKES
Committee.

Dr. Francis McKenna died March 23, 1927. He was born in Providence in 1880. After passing through the city schools, he entered Brown University from which he graduated in 1905. He then entered Harvard Medical School, graduating in 1909. After serving an interneship at the Lynn General Hospital, he returned to Providence to engage in general practice.

Dr. McKenna spent his life in service to others. Although suffering from a chronic malady, he kept at his work with indomitable energy when prudence and inclination would have dictated rest.

He had a big, warm generous nature, but these qualities sometimes when unrecognized because of a modest, undemonstrative and reserved disposition.

We are impressed by his ardent love for his profession, by his entire devotion to its highest ideals and by the singular purity and nobility of his character.

JOHN B. MCKENNA
EDWARD J. BLACK
M. J. NESTOR

BOOK REVIEWS

INTERNATIONAL CLINICS

Volume III. Thirty-seventh Series, 1927
PHILADELPHIA AND LONDON
J. B. LIPPINCOTT CO., *Publishers*

This volume contains numerous important articles as Diagnosis and Treatment by various authorities both of this country and of Germany.

There is an extensive discussion on Pneumococcus Meningitis and Endo Carditis.

Subjects on Surgery, Obstetrics, and Neurology are given some prominence.

There is a well written brief history on Greek Medicine by John R. Oliver, M.D., of Baltimore, Maryland.

The volume ends with a lengthy discussion on Post-Graduate Study by Henry Cuttell of Philadelphia.

INTERNATIONAL CLINICS

Volume IV, Thirty-seventh Series, 1927.

PHILADELPHIA AND LONDON

J. B. LIPPINCOTT CO., *Publishers*

At the beginning of this volume the various subjects discussed by various European authors in the Travel Clinics are given considerable prominence.

They are of interest and of practical value to the general practitioner.

Subjects on Diagnosis and Treatment, Medicine and Surgery are being discussed by various prominent clinicians.

There is an interesting treatise on Medical History "The Middle Ages" by John R. Oliver M.D., of Baltimore, Md.

The volume ends with the study of Post-Graduate work by Astley Ashhurst, M.D., and H. Cattel, M.D., both of Philadelphia.

MISCELLANEOUS

TOBACCO

Nearly every community in the world is involved, in some way, in the tobacco problem. In 1921 the people of the United States spent approximately $1,500,000,000 on tobacco; many persons, who feel that there is a moral principle involved in human consumption of tobacco, have joined organizations for mass attacks against the practice. In some localities legal strictures have limited the sale of the plant in any form.

A session of the International Antitobacco League was held in Prague in 1927. Recently Prof. W. E. Dixon of Cambridge University delivered, in England, the Norman Kerr lecture, on "The Tobacco Habit." In the United States, a report of the Committee to Study the Tobacco Problem has just been published in book form. Unfortunately, the reaching of helpful conclusions after reading these and other articles is difficult. Presumably the reason is that the facts are difficult to establish. Many variables confuse investigators. A given set of determinations may not apply in another investigation. Tobacco may be snuffed, chewed or smoked, and, if smoked, it may be in the form of cigaret or cigar, or may be stuffed into a pipe. The amounts of nicotine in smoke vary with the thickness of cigar or cigaret; with the dampness, the tightness of packing or rolling and with the rapidity of combustion of the tobacco. In pipe smoking, the amount of nicotine at the mouthpiece is affected by the length of the stem and the presence or absence of a filter or catalyzer. Samples of tobacco are not more alike than are the susceptibilities of individuals. The amount of nicotine in the smoke may not bear any theoretically predictable relation to the amount in the tobacco. Furthermore, although the main effect of tobacco smoke is due to nicotine, other substances, such as ammonia gas, pyridine, pyridine derivatives and carbon monoxide, must be taken into account. Controlled conditions, therefore—one of the pre-requisites of scientific work—are difficult to produce.

Nevertheless, it is known that nicotine causes stimulation, followed by depression, of both the central and the autonomic nervous systems. Because of its influence on the autonomic nervous system, tobacco modifies motion and secretion of the alimentary tract. Smoking has a demonstrable effect on pulse rate, blood pressure and the efficiency of the heart.

Nearly everything that comes in contact with the body, however, modifies its functions in some manner. What the world wants to know about tobacco is whether it is harmful, harmless or beneficial. To answer this question, it is necessary to avoid reasoning, without reservation, from the analogy of nicotine injections in animals to the effect of tobacco on man. Clinical opinion must not be confused with clinical fact, or any kind of opinion with experimental demonstration. That much remains unknown must be recognized. For instance, the role of tobacco is causing certain circulatory disorders and possibly sudden

death in some persons remains to be investigated further. From the present available evidence the main conclusions that are justified seem to be the following: The use of tobacco even in moderate quantities seems to lower the efficiency of the heart under strain. This may be classed as a harmful effect. Taken moderately, tobacco tends to stabilize responses to sensory stimuli. This may be classed as a beneficial effect. Other effects depend on individual susceptibility, kind and condition of tobacco, method of taking it and amount consumed. Even tobacco amblyopia seems not to bear any relation to excessive use of the plant. Until more is known, the only general rule that can be given applies to those who feel ill effects from tobacco. Obviously, such persons should be guided by the advice of physicians who have made thorough investigations of their particular cases.—*Journal, A. M. A.*

ACTION OF ULTRAVIOLET IRRADIATION ON BACTERICIDAL PROPERTY OF BLOOD

Continuous daily quartz lamp irradiations for more than three weeks with routine exposure, time and distance lead, in the majority of all cases examined by J. E. Gonce, Madison, Wis., and Karl Kassowitz, Wauwatosa-Milwaukee, Wis. (*Journal A. M. A.*, January 28, 1928), to a lowered bactericidal property of the blood. Completely normal persons free from any infection are apt to show improved bactericidal properties after continuous ultraviolet irradiations; those suffering from chronic infections and post-infectious conditions after daily quartz lamp treatments are apt to show a drop in the bactericidal property of the blood. Normal rabbits tested show in all cases a very favorable response to daily ultraviolet irradiation. The increased or reduced bactericidal property of the blood after ultraviolet irradiation seems to depend largely on the leukocytic reaction of the body. An increased number of white cells, especially of polymorphonuclears, is associated with improved killing power for cocci; a leukopenia is associated with a lowered killing power for cocci. A comparison between the number of leukocytes and the bactericidal property of the blood can be made in the same individual only at different times. Two different individuals may show the same numbers of leukocytes and the opposite antibacterial response. Therefore, it must be assumed that there is a comparatively high constancy in the antibacterial function of the single white cell in one individual, but differences in the leukocytic ability of different individuals. In the matter of treatment, the response of the organism should be controlled by the bactericidal test or at least by the leukocytic reaction of the blood. This white blood count should not be made immediately, but instead twenty-four hours after a light treatment and not less than once a week. The borderline between the therapeutic and the toxic dose of ultraviolet rays with regard to immunity probably varies in each individual case.

ANNOUNCEMENT

WHEEL CHAIRS

The Profession will be interested to learn that Wheel Chairs may be borrowed gratis for deserving and needy persons of the Providence Branch of the International Sunshine Society. Application may be made to Mrs. William A. Millspaugh, 67 Ontario Street, Providence, R. I.

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The Journal begs to thank this Society for its generous offer and heartily commends and appreciates this worthy and much needed charity.